

## 10.5 Simulation Time and Meteorological Data

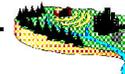


1. Click this button to open the “Simulation Time and Meteorological Data” window (Screen 10.5.1). This window allows you to select the most appropriate meteorological data set and to define the model simulation period.

**Screen 10.5.1**

Meteorological data sets are compiled by weather station, in Watershed Data Management (WDM) files, which are binary files that contain the hourly data required by NPSM. In BASINS, a single WDM file containing meteorological data is provided for each state or territory. Each of these files contains meteorological data for up to 10 weather stations falling within that state or territory. If you wish to use meteorological data from a state outside your U.S. EPA Region, you can download WDM files from the BASINS download page or extract them from the Region CD of interest. The BASINS nation- and territory-wide WDM coverage includes data for 477 weather stations. Meteorological data for each weather station consist of hourly time series for air temperature, precipitation, dew point temperature, wind velocity, solar radiation, cloud cover, potential evapotranspiration, and potential surface evaporation. The period of record is generally January 1, 1970 to December 31, 1995, however, a number of stations contain shorter periods due to limited data availability.

At this point, be sure you have either downloaded or extracted a WDM file for your study area. The WDM data set consists of three files with the same name but different extensions (.WDM, .INF, .TXT). Each file name is a two-letter state abbreviation. The files should be located in the project data directory in the MET\_DATA subdirectory. If you do not have a WDM file, download the appropriate files from the web site and copy them to the MET\_DATA subdirectory.



2. To select WDM files for application to NPSM, click the **Add...** button. The subsequent screen prompts you to add a WDM file to the project. Highlight the appropriate WDM file and click **Open**. Notice that the WDM file will appear in the “Select WDM file” box. Additional WDM files can be loaded in the same manner.

All available weather stations for the WDM file in the “Select WDM file” box are listed in the “Weather station” box. Clicking the down arrow displays the entire list of stations. Weather stations are listed by the state abbreviation and the appropriate National Weather Service station name. Note that the time span of available data for the selected station is also displayed in this window.

3. Each watershed being simulated (those listed in the “Unassigned watersheds” box) must be assigned meteorological data from a single weather station. Separate watersheds may be assigned different weather station(s). You may assign a station to a given subwatershed based on how well the station represents the subwatershed’s climate, taking into account proximity of the station to the subwatershed, elevation differences between the station and the subwatershed, and data availability. To assign a watershed, select the appropriate station in the “Weather station” box and double-click on the watershed name in the “Unassigned watersheds” box. The watershed and the corresponding weather station to which it has been assigned will appear in the “Assigned watersheds” box. To change a weather station designation already made, simply double-click on the watershed in the “Assigned watersheds” box, and it will be sent back to the “Unassigned watersheds” box.

**Tip:** Toggle between NPSM and the BASINS GUI (if open) by pressing the ALT and TAB buttons on your keyboard simultaneously and selecting the ArcView icon. In the BASINS View, display WDM weather stations and examine their proximity to the selected watershed(s). Use the Identify tool to identify and determine the appropriate weather stations for modeling.

To write the meteorological time series data from a simulation (as model output), check the box next to “Write this station to PLTGEN file”. This box can be checked for each weather station you use in your simulation. Upon running the model a separate file will be created for each station, and the file(s) will be located in the BASINS\MODELOUT\

4. After selecting the appropriate weather stations, define a simulation period in the “Simulation time” box. The simulation period must lie within the time spans of all weather stations selected for watersheds. The format for specifying the start and end time is MM/DD/YYYY HH.
5. Click **OK** to save any changes and leave this window or **Cancel** to leave the window without saving changes.

### TUTORIAL

- *Open the tutorial.wdm file.*
- *Select the "PA Johnstown 2" weather station.*
- *Select to "Write this station to PLTGEN file".*
- *Assign the selected weather station to all three subwatersheds.*
- *Enter a simulation time period of 01/01/1980 (00) to 12/31/1984 (24).*